PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Hayao WATANABE, et al.

Appln. No.: 09/885,942

Confirmation No.: 7069

Filed: June 22, 2001

For: SEALED ACTUATOR

Docket No: Q65274

Group Art Unit: 2834

Examiner: KARL I. TAMAI

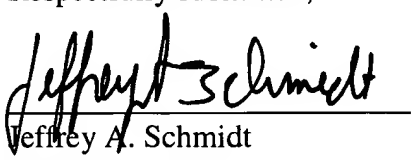
SUBMISSION OF APPELLANTS' BRIEF ON APPEAL

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an original and two copies of Appellants' Brief on Appeal. A check for the statutory fee of $330.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,



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APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 1.192, Appellants submit the following:

I. REAL PARTY IN INTEREST

The real party in interest is Assignee NSK Ltd. of Tokyo, Japan, by way of an assignment recorded on June 4, 1997 at reel 8611, frame 0501.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants, the Appellants' legal representative, or Assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-24 are pending, are allowed, and are not the subject of this appeal;

Claims 25-30, and 34-36, have been canceled, and are not the subject of this appeal;

Claims 31-33, and 37-39, have been rejected, and are the subject of this appeal.

IV. STATUS OF AMENDMENTS

On November 14, 2003, the Examiner issued a Final Office Action. Subsequent to the Final Office Action, Appellants filed a Response Under 37 C.F.R. § 1.116, but did not amend any of the claims. Accordingly, the claims stand as presented before the November 14 Final Office Action.

V. SUMMARY OF THE INVENTION

The present invention relates to sealed actuators in general, and more particularly to a sealed actuator adapted for use in an ultra-high vacuum environment.[1] One example of an ultra-high vacuum environment is in semiconductor manufacturing, wherein a work-piece is worked in an ultra-high vacuum environment in order to eliminate impurities to the extent possible.[2] In the case of an ultra-high vacuum environment, however, there have been problems when attempting to use an actuator. Accordingly, one "object of the invention is to provide a sealed actuator which does not discharge impure gasses in an ultra-high vacuum environment ..."[3]

On another hand, recently, higher integration of semiconductors has been accompanied with higher density by miniaturizing IC pattern widths. In order to fabricate wafers that can meet such miniaturization needs, a high degree of consistency for wafer quality is required. In order to implement miniaturization as required, an extremely highly accurate positioning apparatus must be employed.[4] Further, high integration of semiconductors requires control of higher accuracy and stability. Under such circumstances, positioning control with a resolver

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[1] Col. 1, lines 4-10.

[2] Col. 1, lines 11-23.

[3] Col. 4, lines 18-24.

[4] Col. 1, line 62 - col. 2, line 3.

becomes insufficient due to the fact that magnetism from a motor stack surrounds the resolver.[5] Accordingly, "one object of the present invention is to provide a sealed actuator ... which can achieve highly accurate positioning, and which can maintain sufficient strength."[6]

With respect to maintaining sufficient strength, there is provided, according to a first aspect of the invention, a sealed actuator that comprises: a motor stator including a stator magnetic pole excited by a rotation-drive coil; a housing to which the motor stator is attached; a motor rotor including a rotor magnetic pole disposed opposite to a surface of the stator magnetic pole through a gap; bearings for rotatably supporting a rotation shaft of the motor rotor to the housing; a generic displacement measuring means for measuring displacement of the motor rotor; and a hermetically sealing partition wall made of a nonmagnetic metal material and disposed at the gap between the stator magnetic pole and the rotor magnetic pole, a space where the motor rotor is disposed being hermetically isolated from a space where the motor stator is disposed; wherein the bearings support the motor rotor at positions on the housing at both sides of a member constituting the sealing partition wall in a longitudinal direction of the motor rotor so that the housing directly receives a load applied to the bearings.[7]

Similarly, with reference to Figs. 1 and 4 as an example, one embodiment of the invention consistent with that set forth in claim 37 is a sealed actuator 10 comprising a plurality of unit sealed actuators 10A, 10B connected in series to each other, each of said unit sealed actuators comprising:

a motor stator 11 including a stator magnetic pole 15 excited by a rotation-drive coil 14;

a housing 23, 24 to which said motor stator 11 is attached;

a motor rotor 12 including a rotor magnetic pole 16 disposed opposite to a surface of said stator magnetic pole 15 through a gap 19;

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[5] Col. 4, lines 11-15.

[6] Col. 4, lines 18-24.

[7] Col. 4, lines 25-43.

bearings 17, 18 for rotatably supporting a rotation shaft 12 of said motor rotor to said housing 23, 24;

an encoder for measuring displacement of said motor rotor 12; and

a hermetically sealing partition wall 33 made of a nonmagnetic metal material and disposed at the gap 19 between said stator magnetic pole 15 and said rotor magnetic pole 16, a space where said motor rotor is disposed being hermetically isolated from a space where said motor stator is disposed;

wherein said bearings 17, 18 support said motor rotor 12 at positions on said housing 23, 24 at both sides of a member 33 constituting said sealing partition wall in a longitudinal direction of said motor rotor 12 so that said housing 23, 24 directly receives a load applied to said bearings 17, 18.

See also: col. 5, line 60 - col. 6, line 65; col. 7, line 37 - col. 8, line 32; col. 10, lines 26-31; col. 10, line 40 - col. 11, line 6; col. 11, line 31 - col. 12, line 49; and col. 14, lines 41-63.

According to the first aspect of the invention, the rolling bearings support the motor rotor at positions on the housing portions at both sides of a member constituting the sealing partition wall in a longitudinal direction of the motor rotor so that the housing portions directly receive a load applied to the bearings. Accordingly, even if an arm or the like is attached to the motor rotor, and force such as bending moment caused in the motor rotor is applied to the bearings, such force does not act on the hermetically sealing partition wall, so that superiorly there is eliminated the fear that the sealing partition wall is broken.[8]

Further, with respect to maintaining sufficient strength, according to a third aspect of the invention there is provided a sealed actuator that comprises: a motor stator including a stator magnetic pole excited by a rotation-drive coil; a housing to which the motor stator is attached; a motor rotor including a rotor magnetic pole disposed opposite to a surface of the stator magnetic pole through a gap; bearings for rotatably supporting a rotation shaft of the motor rotor to the

[8] Col. 17, lines 20-32.

housing; a generic displacement measuring means for measuring displacement of the motor rotor; and a hermetically sealing partition wall made of a nonmagnetic metal material and disposed at the gap between the stator magnetic pole and the rotor magnetic pole, a space where the motor rotor is disposed being hermetically isolated from a space where the motor stator is disposed; wherein the sealed actuator further comprises reinforcing means for reinforcing at least a part of the hermetically sealing partition wall.[2]

Similarly, with reference to Figs. 1 and 4 as an example, one embodiment of the invention consistent with that in claim 31 is a sealed actuator comprising:

a motor stator 11 including a stator magnetic pole 15 excited by a rotation-drive coil 14;

a housing 23, 24 to which said motor stator 11 is attached;

a motor rotor 12 including a rotor magnetic pole 16 disposed opposite to a surface of said stator magnetic pole 15 through a gap 19;

an encoder for measuring displacement of said motor rotor 12; and

a hermetically sealing partition wall 33 made of a nonmagnetic metal material and disposed at the gap 19 between said stator magnetic pole 15 and said rotor magnetic pole 16, a space where said motor rotor 12 is disposed being hermetically isolated from a space where said motor stator 11 is disposed;

wherein said sealed actuator further comprises reinforcing means 40, 41, 42 for reinforcing at least a part of said hermetically sealing partition wall 33, said reinforcing means being made of the same nonmagnetic metal material as said partition wall, wherein said partition wall is disposed between said reinforcing means and said motor rotor.

See also: col. 7, line 66 - col. 8, line 24; and col. 10, lines 29, 40-61.

According to the third aspect of the invention, since at least a part of the partition wall disposed between the stator magnetic pole of the motor stator and the rotor magnetic pole of the motor rotor of the sealed actuator is reinforced by reinforcing means, even if the actuator is used

[2] Col. 4, line 63 - col. 5, line 11.

in an ultra-high vacuum apparatus, there occurs no such a disadvantage that the partition wall exposed to vacuum is expanded and/or deformed. Further, there is obtained such a superior effect that deformation of the sealing partition wall at a process for thinning of the partition wall from the inner diameter side of the motor rotor can be prevented to perform accurate thinning.[10]

In other embodiments of the invention, there is set forth the use of a variable-reluctance resolver. For example, a variable reluctance resolver is discussed in connection with Fig. 1 at col. 6, line 66 - col. 7, line 36. Further, for example, Fig. 5 is a variation of the Fig. 4 embodiment, and is a second example wherein there is used a variable-reluctance resolver. See also, col. 12, line 50 - col. 17, line 9, wherein this embodiment is discussed, including its advantages and problems. See also the second and fourth aspects of the invention, wherein there is discussed the use of a resolver as the displacement measuring means.[11]

VI. ISSUES

Issue 1: Whether claims 31-33 and 37-39 are properly rejected under §112, 1st paragraph, as containing subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention.

Issue 2: Whether claims 31, 32, 37, and 38, are unpatentable under §102(b) as being anticipated by Appellants' Admitted Prior Art (hereinafter the APA) or, in the alternative, under §103(a) as being obvious over the APA in view of WO 94/23911 to Hofmeister (hereinafter Hofmeister).

Issue 3: Whether claims 31, 32, 37, and 38, are unpatentable under §103(a) as being obvious over the APA in view of US Patent 2,887,062 to Cametti (hereinafter Cametti) and Hofmeister.

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[10] Col. 17, lines 47-58.

[11] Col. 4, lines 44-62; col. 5, lines 12-40; col. col. 17, lines 33-46, and 61-67.

Issue 4: Whether claims 33 and 39 are unpatentable under §103(a) as being obvious over the APA, Cametti, and Hofmeister, and further in view of FR 2,527,854 to Jacquin (hereinafter Jacquin).

VII. GROUPING OF CLAIMS

Issue 1: Claims 31-33 and 37-39 stand or fall together.

Issue 2: Claims 31 and 32 stand or fall together. Claims 37 and 38 stand or fall together, but stand or fall separately from claims 31 and 32.

Issue 3: Claims 31 and 32 stand or fall together. Claims 37 and 38 stand or fall together, but stand or fall separately from claims 31 and 32.

Issue 4: Claims 33 and 39 stand or fall separately, i.e., they do not stand or fall together.

VIII. ARGUMENTS

Issue 1

The Examiner rejected claims 31-33 and 37-39 under §112, 1st paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention. Appellants respectfully traverse this rejection for the following two reasons.

First, Appellants respectfully traverse this rejection because the Examiner's interpretation of the specification is mistaken. Specifically, the Examiner asserts that the specification does not enable or contain a full, clear, concise, and exact written description of an encoder as a displacement measuring means. Further, the Examiner asserts that the magnetic and optical encoders are not disclosed as part of the invention, and that the specification teaches away from the use of the optical and magnetic encoders. The Examiner is wrong.

Although the resolver rotor and the resolver stator are one method of measuring the displacement of the motor rotor, they are not the only way.

The specification describes the variable reluctance resolver as "a displacement detecting means for detecting a relative displacement between the motor stator 11 and the motor rotor 12";

it does not describe the resolver as the only displacement detecting means.[12] In fact, in the description of the preferred embodiments, the partition wall is described as forming a space in which the rotation-drive coils 14, the motor stator magnetic poles 15, "the coils 27 and the stator 28 of the resolver 26, and the like are accommodated".[13] That is, the space is for accommodating the resolver or other like displacement measuring devices; the invention is not limited to use of the resolver rotor and stator for measuring displacement of the motor rotor.

The specification describes other methods, for measuring displacement of the motor rotor, that are also suitable. As disclosed in the specification, an optical encoder or a magnetic encoder using a magnetic resistance element can be used as methods of detecting position, which methods achieve highly accurate smooth driving of a servo motor that is used for high accuracy positioning.[14] Further, although the specification discloses that optical and magnetic encoders are generally difficult to use in a vacuum environment, the invention is not limited to sealed actuators that are used in vacuum environments. Further, even if in vacuum environments, optical and magnetic encoders can be used depending on the degree of vacuum, required impurity concentration, or the like. As set forth in column 1, lines 4-10, the present invention relates to "sealed actuators, and more particularly to a sealed actuator adapted for use in an ultra-high vacuum environment". That is, the present invention relates to sealed actuators in general, wherein those actuators can be used in other than vacuum environments. After all, it is only '[a]n object of the invention ... to provide a sealed actuator which does not discharge impure gasses in an ultra-high vacuum environment".[15] Moreover, the section entitled "Detailed Description of the Preferred Embodiments" describes "[p]referred embodiments of the

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[12] Specification at col. 7, lines 1-5.

[13] Specification at col. 7, lines 38-63. See also, col. 8, lines 13-16.

[14] Specification at col. 14, lines 41-49.

[15] Specification at col. 4, lines 19-22.

invention"; it does not describe the only embodiments of the invention.[16] And those embodiments of the invention are directed to a "sealed actuator 10" in general, not just to a sealed actuator for use in an ultra-high vacuum environment, which is one example of how the sealed actuator of the present invention can be used.[17] That is, specifically, the specification goes on to state that "for example, even if the sealed actuator is used for an ultra-high vacuum apparatus ...", whereby it implies that the sealed actuator 10 is not necessarily always used in a vacuum apparatus.[18]

Thus, because the sealed actuator of the present invention is not always used in a vacuum apparatus, the use of a resolver is not always necessary; instead, use of an optical encoder, and the use of a magnetic encoder are within the scope of the invention. And the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date, Appellants were in possession of the invention as now claimed, including the use of optical and magnetic encoders, as well as a resolver.

Moreover, as further evidence that Appellants were in possession of the invention as now claimed, including the use of optical and magnetic encoders, Appellants' claims 13 and 16 in the '548 patent encompassed these structures. That is, claims 13 and 16 in the '548 patent—which is the subject of this reissue application—set forth a displacement measuring means. As noted above, the displacement measuring means includes at least a resolver, an encoder, an optical encoder, and a magnetic encoder. Therefore, Appellants are now only specifically setting forth various embodiments already included in, and covered by, the displacement measuring means as originally claimed.

Second, the Examiner's "Response to Arguments", as set forth in the November 14, 2003 Final Office Action is mistaken.

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[16] Specification at col. 5, lines 57-65.

[17] Specification at col. 5, line 62.

[18] Specification at col. 10, lines 43-46.

Initially, the Examiner asserts that the specification does not support use of optical and magnetic encoders in the Appellants' invention because "[t]he specifications specifically teaches that they are not suitable (col. 14, lines 55-63) for use because of deficiencies of the semiconductor use in a vacuum."[19] But the Examiner reads the specification too narrowly, and the "teaching away" too broadly. That is, the specification broadly is drawn to a "sealed actuator", not only one for use in a vacuum environment, which is only one exemplary embodiment. Further, the specification's alleged "teaching away" pertains only narrowly to one embodiment—the actuator as used in a vacuum environment. Accordingly, as noted in the original specification, when not in a vacuum environment, optical and magnetic encoders provide "high accuracy smooth driving."[20]

Further, the Examiner asserts that the original application supports his rejection "because the Applicant never claimed optical and magnetic position detectors."[21] Again, the Examiner's interpretation of the original application is mistaken. Original claim claims 13 and 16 encompass optical and magnetic encoders and, therefore, Appellants had indeed originally claimed these elements. Specifically, original claims 13 and 16 set forth a "displacement measuring means". As set forth in the original specification, "an optical encoder or a magnetic encoder using a magnetic resistance element is used as position detecting means for high accuracy smooth driving."[22]

For at least any of the above reasons, this rejection is believed to be in error and should be reversed.

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[19] November 14 Office Action at page 6, item 14, paragraph 2, lines 1-5.

[20] Specification at col. 14, lines 41-49.

[21] November 14 Office Action at the paragraph bridging pages 7 and 8, lines 5-9.

[22] Specification at col. 14, lines 41-44.

Drawings

The Examiner objected to the drawings as not showing every feature of the invention specified in the claims. Specifically, the Examiner asserted that the optical encoder and the magnetic encoder must be shown.[23] Because this objection to the drawings is tied to the Examiner's rejection of claims 31-33 and 37-39 under §112, 1st paragraph, Appellants address it here, and respectfully traverse this objection for the following reasons.

On July 29, 2003, Appellants filed a proposed drawing correction sheet having a new Fig. 8, which shows an encoder in general. That is, the encoder in proposed new Fig. 8 is exemplary of both an optical encoder and a magnetic encoder. The Examiner has not accepted this drawing because he asserts that there is no support in the specification for a sealed actuator using an encoder. Accordingly, the Examiner has tied this objection to the drawings with a rejection under §112, 1st paragraph, thereby making appeal thereof appropriate. As noted above, with respect to the rejection made under §112, 1st paragraph, the specification does provide support for a sealed actuator using an encoder, as shown in Fig. 8.

Accordingly, Appellants respectfully request that the Honorable Board of Appeals withdraw this objection in connection with the §112, 1st paragraph rejection, and accept Fig. 8 as submitted with the Amendment filed on July 29, 2003.

Issue 2

- The Examiner rejected claims 31, 32, 37, and 38, under §102(b) as being anticipated by Applicants' Admitted Prior Art (hereinafter the APA) or, in the alternative, under §103(a) as being obvious over the APA in view of WO 94/23911 to Hofmeister (hereinafter Hofmeister).

Appellants respectfully traverse this rejection because the APA fails to disclose every element as set forth in Appellants' claims, and because the APA in combination with Hofmeister fails to establish *prima facie* obviousness in that the references fail to teach or suggest every element as set forth in Appellants' claims.

First, Appellants respectfully traverse this rejection because the APA fails to disclose every element as set forth in Appellants' claims, and because the APA in combination with Hofmeister fails to establish *prima facie* obviousness in that the references fail to teach or suggest every element as set forth in Appellants' claims.

Claim 31 sets forth a sealed actuator comprising a motor stator, a housing, a motor rotor, a hermetically sealing partition wall made of a nonmagnetic metal material and disposed at a gap between the stator and rotor magnetic poles, wherein the actuator further comprises reinforcing means made of the same nonmagnetic metal material as the partition wall. That is, claim 31 sets forth that both the partition wall and the reinforcing means are made of a non-magnetic metal material.

In contrast to that set forth in claim 31, the APA discloses that the partition walls 216a and 236a are made of a non-metal.[24] And non-metal is not the same as nonmagnetic metal. Further, Hofmeister does not disclose any material in particular from which the housing 16 and partition wall are made. Accordingly, the APA fails to anticipate, or render obvious in view of Hofmeister, Appellants' claim 31. Claim 32 is allowable at least by virtue of its dependency.

Claim 37 sets forth a sealed actuator comprising a motor stator, a housing to which the motor is attached, a motor rotor, and bearings for rotatably supporting a rotation shaft of the motor rotor to the housing, wherein the bearings support the motor rotor at positions on the housing at both sides of a member constituting a sealing partition wall in a longitudinal direction of the motor rotor so that the housing directly receives a load applied to the bearings.

For example, as shown in Fig. 1, vacuum roller bearings 17, 18 are disposed at both sides of a member constituting a sealing partition wall 33 in a longitudinal direction of the motor rotor 12 so that the housing 23, 24 directly receives a load applied to the bearings. That is, the

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[23] November 14 Office Action at page 2, item 2.

[24] Specification at col. 3, lines 44-52. See also, Office Action at page 4, item 9, lines 4-5.

bearings 17, 18 do not act on the partition wall 33. See, for example, col. 12, lines 16-33. Accordingly, the partition wall does not deform upon application of a load to the bearings.

In contrast to that set forth in claim 37, the APA discloses bearings 218 that are mounted, and transmit a force that acts, directly on the partition wall 216a. See Fig. 7. Further, note col. 3, line 59 - col. 4, line 1, wherein for the APA, the specification states that its

> bearings [are] disposed in the housings 216 and 236 including the thin partition wall, ...[so that it] has a problem that supporting rigidity of the respective drive shafts to the housings is lowered. ... the force acting on the bearings acts also on the partition wall so that such a possibility can not be neglected that the partition wall is deformed or the partition wall is broken.

Indeed, the upper bearing for each actuator is disposed on the portion of the wall which the Examiner cites as being that "which expands radially outward to the coil end turns when the wall is axially outside the air gap between the rotor and stator."[25] Accordingly, a force acting on the bearings acts also on the partition wall so that such a possibility can not be neglected that the partition wall is deformed or the partition wall is broken.[26]

Further, the Examiner cites Hofmeister as teaching optical encoders. But Hofmeister does not teach or suggest bearings for rotatably supporting a rotation shaft of the motor rotor to the housing, wherein the bearings support the motor rotor at positions on the housing at both sides of a member constituting a sealing partition wall in a longitudinal direction of the motor rotor so that the housing directly receives a load applied to the bearings, as set forth in claim 37.

For at least any of the above reasons, the APA does not anticipate, or render obvious with Hofmeister, Appellants' claims 37 and 38. Accordingly, Appellants respectfully request that the Honorable Board of Patent Appeals and Interferences reverse this rejection.

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[25] Office Action at page 4, item 9, lines 5-8.

[26] Specification at the sentence bridging columns 3 and 4.

Second, the Examiner's "Response to Arguments", as set forth in the November 14 Final Office Action, again is mistaken. Specifically, the Examiner asserts "Applicant's argument that the partition walls must be non-magnetic is not persuasive because the APA teaches the walls are non-magnetic (col. 3, line 1-2)."[27] But the Examiner mixes up two different pieces of prior art as disclosed in the present specification.

The first type of prior art is exemplified by Japanese Patent Unexamined Publication Nos. Hei 03-140041 and '042, as disclosed from col. 2, line 55 to col. 3, line 23. In this type of prior art, there is used a nonmagnetic metal, as noted by the Examiner.

The second type of prior art is exemplified in Fig. 7 of the specification, and is described from col. 3, line 24 - col. 4, line 9. In this second type of prior art, there are used "nonmetal partition walls 216a and 236a ..."[28] And it is this second type of prior art on which the Examiner relies in his statement of the rejection. Specifically, the Examiner asserts that the "AAPA shows but does not describe optical encoders below bearing 219."[29] And element 219 is shown in the Fig. 7 prior art.

Accordingly, the Examiner has mixed the disparate teachings of two different types of prior art without providing any motivation for doing so; this he cannot do. After all, even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. *In re Kotzab*, 55 USPQ2d at 1316-1317 (*citing B.F. Goodrich Co. v. Aircraft Breaking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996)); *see also* MPEP § 2142.

For at least any of the above reasons, this rejection is believed to be in error and should be reversed.

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[27] Office Action at page 7, 1st full paragraph, at lines 1-2.

[28] Specification at col. 3, lines 47-52.

[29] November 14 Office Action at page 4, item 9, lines 11-12.

Issue 3

• The Examiner rejected claims 31, 32, 37, and 38, under §103(a) as being unpatentable over the APA and US Patent 2,887,062 to Cametti (hereinafter Cametti) and Hofmeister. Appellants respectfully traverse this rejection for at least the following three reasons.

First, because this rejection is based on the APA and Hofmeister, Appellants' arguments as set forth above are pertinent here and, therefore, are incorporated by reference. Further, Cametti does not teach or suggest anything to cure the above-noted deficiencies in the Examiner's attempted combination of the APA and Hofmeister.

Second, with respect to claim 31, the Examiner fails to establish *prima facie* obviousness.

Claim 31 sets forth a partition wall disposed between a reinforcing means and a motor rotor. For example, as shown in Fig. 1, one embodiment of the invention consistent with that in claim 1 includes a partition wall 33 disposed between a reinforcing means 40, 41 and a motor rotor 12.

The Examiner interprets the APA's thickened portion of the partition wall 216a as a reinforcing means. But then the partition wall 216a is not disposed between the thickened portion and the motor rotor 207. See Fig. 7 in the present specification. Further, although the Examiner asserts that Cametti teaches a partition wall 12 between supports 8, 9, and the rotor 15, he does not provide any motivation for combining such a teaching with the APA, which he must do. After all, most if not all inventions arise from a combination of old elements. *In re Kotzab*, 55 USPQ2d at 1316 (*citing In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457 (Fed. Cir. 1998). Thus, every element of a claimed invention may often be found in the prior art. *Id.* However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. *Id.* Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. *In re Kotzab*, 55 USPQ2d at 1316 (*citing In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); and *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)).

Third, with respect to claim 37, the references fail to teach or suggest all the elements as set forth in the claim.

Again, claim 37 sets forth that for each actuator, the bearings support the motor rotor at positions on the housing at both sides of a member constituting the sealing partition wall in a longitudinal direction of the motor rotor so that the housing directly receives a load applied to the bearings.

As noted above, the APA and Hofmeister fail to teach or suggest bearings located at positions on the housing at both sides of a member constituting the sealing partition wall in a longitudinal direction of the motor rotor so that the housing directly receives a load applied to the bearings.

In particular, the APA discloses bearings 218 that are disposed directly on the partition wall 216a. Similarly, Cametti discloses motor-rotor-support bearings 21, 23, 31, all of which act so as to transfer a force from the rotor 15 to the thin walled cylinder 12, which the Examiner cites as being a partition wall. Accordingly, even if one of ordinary skill in the art were motivated to combine the references as suggested by the Examiner, any such combination would still include rotor-support bearings that act to exert a load on the partition wall; it would not teach or suggest bearings located at positions on the housing at both sides of the partition wall in a longitudinal direction of the motor rotor so that the housing directly receives a load applied to the bearings, as set forth in claim 37. On the other hand, as shown in Fig. 1 of the present specification, one embodiment consistent with that set forth in claim 37 includes bearings 17, 18 located at positions on the housing 23, 24 (via respective mounting members 22A, 22b) at both sides of the partition wall 33 in a longitudinal direction of the motor rotor 12 so that the housing 23, 24 directly receives a load applied to the bearings 17, 18. That is, the load from the bearings is transferred to the housing 23, 24 without passing through the partition wall 33, so as not to deform the partition wall 33.

The Examiner cited Cametti as teaching a sealing wall and supports that are made of non-magnetic stainless steel. But Cametti fails to teach or suggest a bearing location as set forth in

Appellants' claim 37. Instead, Cametti teaches a rotor 15 having an extension 18 for mounting the rotor, wherein the extension is supported by bearing journal 21, sleeve bearing 23, and bearing housing 31, all of which come between the rotor mounting extension 18 and the thin walled cylinder 12 that seals the stator 4. See Fig. 1A, for example.

Therefore, even assuming that one of ordinary skill in the art were motivated to combine the APA, Hofmeister, and Cametti as suggested by the Examiner, any such combination would still not teach or suggest bearings located at positions on the housing at both sides of a member constituting the sealing partition wall in a longitudinal direction of the motor rotor so that the housing directly receives a load applied to the bearings, as set forth in claim 37.

For at least any of the above reasons, the Examiner's attempted combination of the APA with Hofmeister and Cametti fails to render obvious Appellants' claims. Accordingly, Appellants respectfully request that the Honorable Board of Patent Appeals and Interferences reverse this rejection.

Issue 4

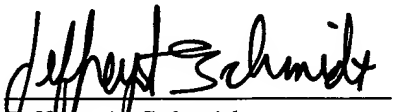
- The Examiner rejected claims 33 and 39 under §103(a) as being unpatentable over the APA and Cametti and Hofmeister, in further view of FR 2,527,854 to Jacquin (hereinafter Jacquin). Because this rejection is based on the APA, Cametti, and Hofmeister, Appellants arguments as set forth above are pertinent here and, therefore, are incorporated herein by reference. Further, Jacquin does not teach or suggest anything to cure the above-noted deficiencies in the Examiner's attempted combination of the APA, Cametti, and Hofmeister. Accordingly, Appellants respectfully request that the Honorable Board of Patent Appeals and Interferences reverse this rejection.

Conclusion

The present Brief on Appeal is being filed in triplicate. Unless a check is submitted herewith for the fee required under 37 C.F.R. §1.192(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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APPENDIX

Claims 31-33 and 37-39 on appeal:

31. A sealed actuator comprising:

a motor stator including a stator magnetic pole excited by a rotation-drive coil;

a housing to which said motor stator is attached;

a motor rotor including a rotor magnetic pole disposed opposite to a surface of said stator magnetic pole through a gap;

an encoder for measuring displacement of said motor rotor; and

a hermetically sealing partition wall made of a nonmagnetic metal material and disposed at the gap between said stator magnetic pole and said rotor magnetic pole, a space where said motor rotor is disposed being hermetically isolated from a space where said motor stator is disposed;

wherein said sealed actuator further comprises reinforcing means for reinforcing at least a part of said hermetically sealing partition wall, said reinforcing means being made of the same nonmagnetic metal material as said partition wall, wherein said partition wall is disposed between said reinforcing means and said motor rotor.

32. A sealed actuator as claimed in claim 31, wherein said encoder is an optical encoder.

33. A sealed actuator as claimed in claim 31, wherein said encoder is a magnetic encoder.

37. A sealed actuator comprising a plurality of unit sealed actuators connected in series to each other, each of said unit sealed actuators comprising:

a motor stator including a stator magnetic pole excited by a rotation-drive coil;

a housing to which said motor stator is attached;

a motor rotor including a rotor magnetic pole disposed opposite to a surface of said stator magnetic pole through a gap;

bearings for rotatably supporting a rotation shaft of said motor rotor to said housing;

an encoder for measuring displacement of said motor rotor; and

a hermetically sealing partition wall made of a nonmagnetic metal material and disposed at the gap between said stator magnetic pole and said rotor magnetic pole, a space where said motor rotor is disposed being hermetically isolated from a space where said motor stator is disposed;

wherein said bearings support said motor rotor at positions on said housing at both sides of a member constituting said sealing partition wall in a longitudinal direction of said motor rotor so that said housing directly receives a load applied to said bearings.

38. A sealed actuator as claimed in claim 37, wherein said encoder is an optical encoder.

39. A sealed actuator as claimed in claim 37, wherein said encoder is a magnetic encoder.